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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,026	01/29/2004	Jeffrey James Kisak	132971/624226-374	4709

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EXAMINER

HAMO, PATRICK

ART UNIT.	PAPER NUMBER
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3746

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/767,026

Applicant(s)

KISAK ET AL.

Examiner

Patrick Hamo

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/29/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 10 recites the limitation "the predicted faulted condition" in line 3 of the claim. There is insufficient antecedent basis for this limitation in the claim. For the purposes of examination, the limitation is understood to be the faulted condition in the operation referenced in claim 1.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Lifson, U.S. Pat. No. 6,238,188.

Lifson discloses an air compressor system including a compressor (20), a motor driving the compressor (24), a power source (34) energizing the motor, and a control (38) monitoring a number of parameters to determine if a compressor speed meets a target value (column 3, lines 22-24). The difference between the compressor's actual speed and the target value is the slip (column 1, lines 22-27), and the process of determining if the speed meets the target value is a means of comparing the actual slip to an allowed value of slip. Lifson further discloses a control (38) that reduces the

Art Unit: 3746

compressor load to increase the compressor speed (column 3, lines 24-25), correcting the faulted slip condition, by actuating a compressor bypass valve (30) in response to the faulted condition.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cunkelman, U.S. Pat. No. 6,390,779 in view of Lifson.

Cunkelman '779 discloses an "intelligent" air compressor system for a locomotive (column 1, lines 2-3) and method of operating said system, including an air compressor (column 1, line 13), an electric motor receiving electric power and driving the air compressor (column 3, lines 43-52), directed by a computer in response to a signal to operate at an appropriate output (column 3, lines 44-45). Operating at an actual speed, whether the same or different from the speed commanded by the computer, is inherent in an operational motor. Cunkelman '779 also discloses measuring pressure values on reservoirs located on the locomotive (column 3, lines 57-59) coupled to receive pressurized air from the air compressor (column 3, lines 24-26), and comparing the measured pressure value relative to a predetermined upper limit to identify a faulted condition, and load or unload the air compressor in response (column 3, lines 56-65).

Art Unit: 3746

On the next start of the system, the compressor motor will be commanded at a predefined speed, and will be elevated relative to some other value.

However, Cunkelman '779 does not disclose a method of determining the commanded speed of the electric motor, determining the actual speed of the motor, determining a parameter indicative of the slip between commanded and actual speeds, and predicting a faulted condition in the operation of the air compressor system in response to the parameter.

Lifson teaches a control (38) monitoring a number of parameters to determine if a compressor speed meets a target value (column 3, lines 22-24) and a bypass valve (30) that readjusts the load of the compressor in response to the control's output. The difference between the compressor's actual speed and the target value is the slip between commanded and actual speeds (column 1, lines 22-27), in the broadest interpretation of the word "commanded". It determines the slip of the motor by measuring the line frequency and voltage supplied to the motor (Figure 2) and monitoring the compressor suction and discharge pressure (column 1, lines 59-61). If the line frequency or voltage is such that the compressor speed is not within a target range for a measured pressure rise across the compressor, the control determines that the compressor load needs to be decreased (column 1, lines 61-65), constituting a response to a predicted faulted condition. The response to the faulted condition cannot be made without the control first predicting what the faulted condition is. Therefore it would have been obvious to one having ordinary skill in the art at the time of invention to combine the invention disclosed in Cunkelman '779 with that of Lifson in order to

Art Unit: 3746

further prevent compressor damage by reducing compressor load when operating speed is too low or too high as can be the case at extremes of line frequency and voltage (Abstract, lines 1-4).

7. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lifson in view of Cunkelman '779.

Lifson discloses an air compressor system substantially as claimed and discussed above.

However, Lifson does not disclose a pressure sensor for measuring an air pressure value in a reservoir coupled to receive pressurized air from an air compressor coupled to said air compressor motor, a control module configured to compare the measured pressure value relative to a predetermined upper limit for identifying a type of the predicted faulted condition responsive to the slip parameter, when the measured pressure value exceeds the predetermined upper limit, the identified type of predicted faulted condition comprises a compressor unloading faulted condition, and when the measured pressure value is below the predetermined upper limit, the identified type of predicted faulted condition comprises a compressor speed faulted condition, and when a compressor unloading faulted condition has been identified, the control module configured to command, on a next start of the compressor motor, an engine speed at a predefined relatively elevated value.

Cunkelman '779 teaches an "intelligent" air compressor system for a locomotive (column 1, lines 2-3) that measures pressure values on reservoirs located on the locomotive (column 3, lines 57-59) coupled to receive pressurized air from an air

Art Unit: 3746

compressor (column 3, lines 24-26) coupled to a motor (column 3, lines 44-46), and a computer (10), which is a control module, for comparing the measured pressure value relative to a predetermined upper limit to identify a faulted condition (column 3, lines 54-65), and load or unload the air compressor in response (column 3, lines 56-65).

Because Cunkelman's computer was made to load or unload the compressor, it is obvious to have had an upper limit of pressure value readings that would prompt the computer to unload the compressor. On the next start of the system, the compressor motor was to be commanded at a predefined speed, and was elevated relative to some preset datum. Therefore it would have been obvious to one having ordinary skill in the art at the time of invention to combine Lifson's invention with that of Cunkelman '779 to provide a dedicated computer or microprocessor that permits the automatic supply of information to an operator of a locomotive concerning the condition of the air compressor (column 2, lines 1-6).

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lifson as applied to claim 9 above in view of Cunkelman '779, and further in view of Cunkelman, U.S. Patent No. 6,026,587.

Lifson discloses all the limitations substantially as claimed and discussed above except for an alternator coupled to a main engine of the locomotive constituting the power source, a speed sensor coupled to either the alternator or the engine, the signals from the speed sensor, along with the signal from the speed sensor on the electric motor, being supplied to the controller to determine the actual slip of the motor.

Cunkelman '779 teaches a miscellaneous sensor (16c) that measures RPM, which can measure the speed of the alternator or engine. As stated above, it would have been obvious to one having ordinary skill in the art at the time of the invention to combine Lifson's invention with that of Cunkelman '779 to provide a dedicated computer or microprocessor that permits the automatic supply of information to an operator of a locomotive concerning the condition of the air compressor (column 2, lines 1-6).

Cunkelman '587 teaches an air compressor (11) driven by an electric motor (26) supplied power from an alternator of an engine (column 4, lines 35-40) with a blowdown valve (10) that rapidly exhausts air pressure from an air compressor when the compressor motor is changing speeds (column 3, lines 7-12). When diesel engine speed increases, its alternator increases to an RPM appropriate for operating the compressor motor at an RPM suitable for given pole arrangements of the motor (column 4, lines 39-43). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to combine the inventions of Lifson and Cunkelman '779 with that of Cunkelman '587 in order to allow a compressor motor speed change to occur on a completely unloaded compressor (column 3, lines 12-14).

Conclusion

9. Applicant is duly reminded that a complete response must satisfy the requirements of 37 C.F. R. 1.111, including: "The reply must present arguments pointing out the specific distinctions believed to render the claims, including any newly presented claims, patentable over any applied references. A general allegation that the claims 'define a patentable invention' without specifically pointing out how the language of the

Art Unit: 3746


claims patentably distinguishes them from the references does not comply with the requirements of this section. Moreover, 'The prompt development of a clear Issue requires that the replies of the applicant meet the objections to and rejections of the claims.'" Applicant should also specifically point out the support for any amendments made to the disclosure. See MPEP 2163.06 II (A), MPEP 2163.06 and MPEP 714.02. The "disclosure" includes the claims, the specification and the drawings.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Hamo whose telephone number is 571-272-3492. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ehud Gartenberg can be reached on 571-272-4828. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000


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